An apparent case of interspecific allopreening by a Royal Spoonbill *Platalea regia*

Matthew Mo

NSW Department of Primary Industries, Elizabeth Macarthur Agricultural Institute, Woodbridge Road, Menangle NSW 2568, Australia. Email: matthew.mo@dpi.nsw.gov.au

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Introduction

The altruistic behaviour, allopreening is widespread amongst birds, especially in aggregating species (Waltman and Beissinger 1992; Radford and Du Plessis 2006; Cox 2012; Gill 2012). One obvious benefit is the removal of ectoparasites and maintenance of plumage condition, although close proximity may also aid the transmission of parasites (Frigerio *et al.* 2016). Allopreening also appears to have important social functions, with some studies suggesting it promotes pair bonding (Barbour and Degange 1982), buffers the negative effects of social stress (Scheiber *et al.* 2005; Hennessy *et al.* 2006; Stowe *et al.* 2008) and reduces the likelihood of interspecific conflicts and associated breeding failures (Lewis *et al.* 2007).

The Royal Spoonbill *Platalea regia* and Australian White Ibis *Threskiornis molucca* are two common waterbirds that occur in freshwater and brackish environments in Australia. These species are known to form associations and breed alongside each other in mixed-species nesting colonies (Marchant and Higgins 1990).

In this note, I present an apparent observation of interspecific allopreening by an immature Royal Spoonbill toward an adult Australian White Ibis.

Observation

The observation was recorded on 12 May 2016 at Lake Belvedere, a large artificial wetland in the southern portion of Bicentennial Park, Homebush Bay, New South Wales (33° 51' 2.33" S, 151° 4' 32.50" E). The Australian White Ibis is a regular sight at this location while the Royal Spoonbill is found at this location intermittently.

Three prior visits were made to the site, summarised in Table 1. On 25 November 2015, two adult Royal Spoonbills in breeding plumage were observed, with one spoonbill seen on a nest on 23 March 2016. Subsequent visits on 2 and 9 May located four immature spoonbills in a mixed flock with six to eight Australian White Ibises. On both these days, the mixed flock was at the same locality, with individual birds alternating between feeding in the shallows of the western side of the lake and resting or preening on the small island structures.

On 12 May, observations were made between 1145 and 1320 hours. There were two immature spoonbills and seven ibises present. At first, there was little interaction between any of the birds. During the observation period, both spoonbills and four ibises spent varying amounts of time bathing and preening. The first interaction seen was one spoonbill allopreening the other's tail and back feathers while it was bathing (Fig. 1). The bathing spoonbill intermittently paused and turned its neck to face the other

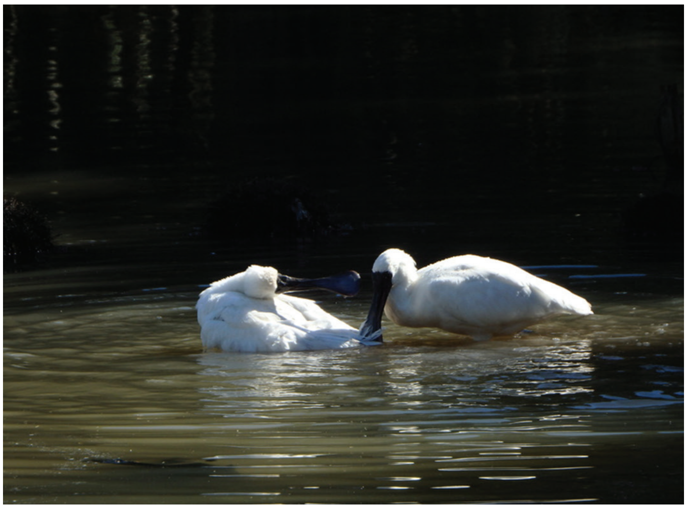

Figure 1. Royal Spoonbill *Platalea regia* allopreening another spoonbill. Photo, M. Mo

Table 1. Dates and times of observation periods, and weather conditions

Observation date	Time (start)	Duration	Weather conditions
25 November 2015	0920 hr	25 min	Clear skies, light wind
23 March 2016	1340 hr	70 min	Clear skies, light to no wind
2 May 2016	1000 hr	25 min	Clear skies, light to no wind
9 May 2016	1630 hr	45 min	Cloudy, some rainfall, no wind
12 May 2016	1145 hr	95 min	Clear skies, light wind

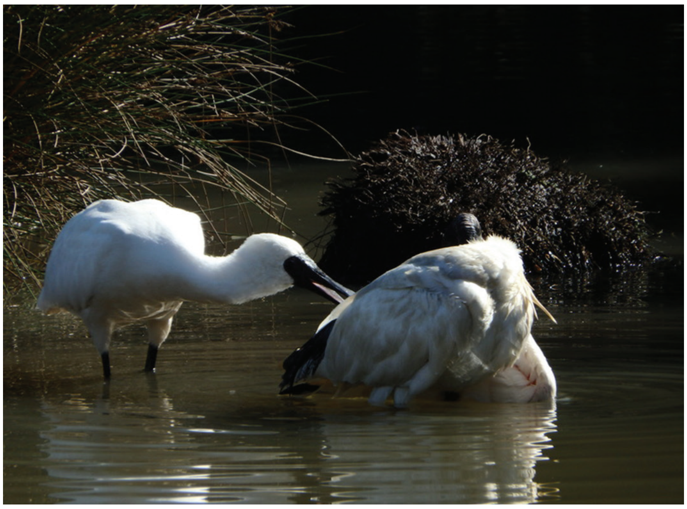

Figure 2. Royal Spoonbill *Platalea regia* standing behind the bathing Australian White Ibis *Threskiornis moluccus*. Photo, M. Mo.

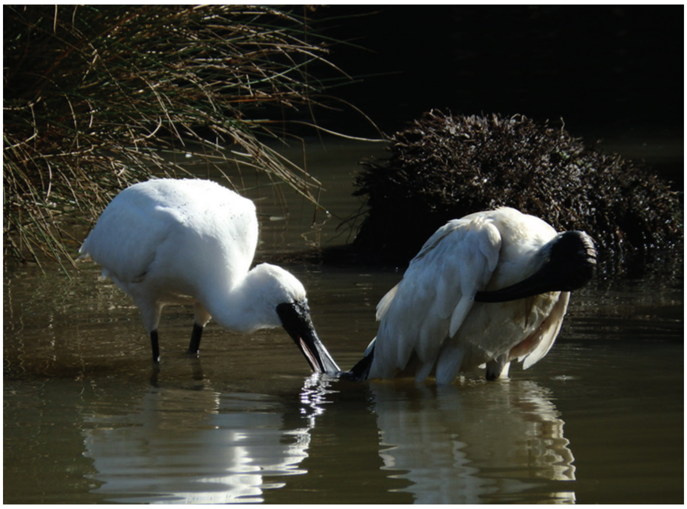

Figure 3. Royal Spoonbill *Platalea regia* dips its bill below the water in close proximity. Photo, M. Mo

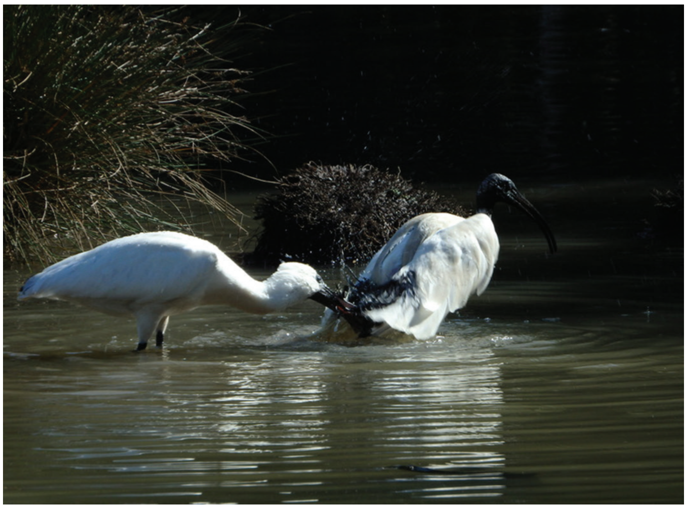

Figure 4. Royal Spoonbill *Platalea regia* allopreens the Australian White Ibis *Threskiornis moluccus* when it preens and pulls back during bathing bouts. Photo, M. Mo.

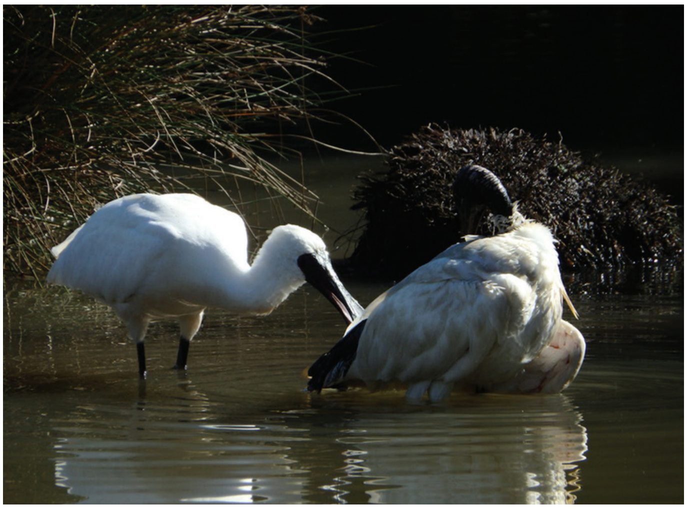

Figure 5. The Australian White Ibis *Threskiornis moluccus* pauses and turns its head toward the Royal Spoonbill *Platalea regia.* Photo, M. Mo.

spoonbill, but did not move away. This bathing-allopreening interaction occurred for approximately 6 min.

Later in the observation period, an ibis descended from an island to bathe. It bathed alone for approximately 5 min before one of the spoonbills feeding nearby approached. Initially, the spoonbill watched (Fig. 2), but after 3 min, it began to partially submerge its bill close to the ibis (Fig. 3). The spoonbill then started to reach for the ibis's tail feathers, pulling back during the ibis's bathing bouts and taking the chance to allopreen while the ibis preened itself (Fig. 4). At times, the spoonbill appeared to reach for the ibis's uropygial gland with the tip of its bill, however it was difficult to confirm because of the angle and constant movement. This occurred for approximately 11 min, during which the ibis paused and turned its head toward the spoonbill seven times (Fig. 5). This was possibly a sign that the allopreening was unsolicited, although it did not move away at any time. At one point, the ibis turned its neck and the two birds' bills made contact.

Other cases of interspecific allopreening

To the best of my knowledge, this is the first case of interspecific allopreening in the order Ciconiiformes reported in literature. Although allopreening is often associated with altruistic behaviour (Lewis *et al.* 2007), the immature Royal Spoonbill was more likely acting as a matter of curiosity and exhibiting juvenile play (*cf.* Diamond and Bond 2003; Mo and Waterhouse 2015), or was exhibiting behaviour important in pair-bonding and which is more likely to be directed at conspecifics as the spoonbill matures. Harrison (1968) recorded allopreening between Silvereyes *Zosterops lateralis* and Yellow White-eyes *Z. luteus* (Passeriformes), which is the only other case of interspecific allopreening in Australia mentioned in scientific literature.

Interspecific allopreening has been recorded in other species outside Australia, most recently between

Crested Caracaras *Caracara plancus* and Black Vultures *Coragyps* atratus (Ng and Jasperson 1984; Palmeira 2008; Souto *et al.* 2009). Invitation displays performed by cowbirds *Molothrus* spp. to encourage other bird species to allopreen have been described by many authors (Chapman 1928; Selander and La Rue 1961; Selander 1964; Dow 1968; Rothstein 1971,1977; Ryser and Dewey 1985). Harrison (1963) also recorded displays by the Rice Grackle *Psomocolax oryzivorus*, as well as interspecific allopreening between two owl species in captivity (Harrison 1965). This behaviour has been recorded in female Brewer's Blackbirds *Euphagus cyanocephalus*, which Verbeek *et al.* (1981) discussed behaviour associated with solicitation of allopreening from other species.

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References

Barbour, D.B. and Degange, A.R. 1982. Reciprocal allopreening in the Brown-headed Nuthatch. *Auk* **99**: 171. http://dx.doi.org/10.2307/4086037

Chapman, F.M. 1928. The nesting habits of Wagler's Oropendola (*Zarhynchus wagleri*) on Barro Colorado Island. *Bulletin of the American Museum of Natural History* **58**: 123-166.

Cox, J.A. 2012. Social grooming in the Brown-headed Nuthatch may have expanded functions. *Southeastern Naturalist* **11**: 771-774. http://dx.doi.org/10.1656/058.011.0415

Diamond, J. and Bond, A.B. 2003. A comparative analysis of social play in birds. *Behaviour* **140**: 1091-1115. http://dx.doi.org/10.1163/156853903322589650

Dow, D.D. 1968. Allopreening invitation display of a Brown-headed Cowbird to Cardinals under natural conditions. *Wilson Bulletin* **80**: 494-495.

Frigerio, D., Cibulski, L., Ludwig, S.C., Campderrich, I., Kotrschal, K. and Wascher, C.A.F. 2016. Excretion patterns of coccidian oocysts and nematode eggs during the reproductive season in Northern Bald Ibis (*Geronticus eremita*). *Journal of Ornithology* **157**: 839-851. http://dx.doi.org/10.1007/s10336-015-1317-z

Gill, S.A. 2012. Strategic use of allopreening in family-living wrens. *Behavioral Ecology and Sociobiology* **66**: 757-763. http://dx.doi.org/10.1007/s00265-012-1323-6

Harrison, C.J.O. 1963. Interspecific preening display by the Rice Grackle, *Psomocolax oryzivorus*. *Auk* **80**: 373-374. http://dx.doi.org/10.2307/4082902

Harrison, C.J.O. 1965. Allopreening as agnostic behaviour. *Behaviour* **24**: 161-209. http://dx.doi.org/10.1163/156853965x00011

Harrison, C.J.O. 1968. Some comparative notes on the Common and Yellow Silver-eyes. *Emu* **68**: 127-131. http://dx.doi.org/10.1071/mu968127

Hennessy, M.B., Hornschuh, G., Kaiser, S. and Sachser, N. 2006. Cortisol responses and social buffering: a study throughout the life span. *Hormonal Behaviour* **49**: 383-390. http://dx.doi.org/10.1016/j.yhbeh.2005.08.006

Lewis, S., Roberts, G., Harris, M.P., Prigmore, C. and Wanless, S. 2007. Fitness increases with partner and neighbor allopreening. *Biology Letters* **3**: 386-389. http://dx.doi.org/10.1098/rsbl.2007.0258

Marchant, S. and Higgins, P.J. (eds.). 1990. *Handbook of Australian, New Zealand and Antarctic Birds. Volume 1. Ratites to Ducks.* Oxford University Press, Melbourne.

Mo, M. and Waterhouse, D.W. 2015. Development of independence in Powerful Owl *Ninox strenua* fledglings in suburban Sydney. *Australian Field Ornithology* **32**: 143-153.

Ng, D. and Jasperson, B.D. 1984. Interspecific allopreening between Crested Caracara and Black Vulture. *Condor* **86**: 214-215. http://dx.doi.org/10.2307/1367047

Palmeira, F.B.L. 2008. Allopreening behavior between Black Vulture (*Coragyps* atratus) and Southern Caracara (*Caracara plancus*) in the Brazilian *Pantanal*. *Revista Brasileira de Ornitologia* **16**:172-174.

Radford, A.N. and Du Plessis, M.A. 2006. Dual function of allopreening in the cooperatively breeding Green Woodhoopoe, *Phoeniculus purpureus*. *Behavioral Ecology and Sociobiology* **61**: 221-230. http://dx.doi.org/10.1007/s00265-006-0253-6

Rothstein, S.I. 1971. A re-analysis of the interspecific invitation to preening display as performed by the Brown-headed Cowbird (*Molothrus ater*). *American Zoologist* **11**: 638.

Rothstein, S.I. 1977. The preening invitation or head-down display of parasitic cowbirds: I. Evidence for intraspecific occurrence. *Condor* **79**: 13-23. http://dx.doi.org/10.2307/1367525

Ryser, F.A. and Dewey, J. 1985. *Birds of the Great Basin: a Natural History*. University of Nevada Press, Reno, Nevada.

Scheiber, I.B.R., Weiß, B.M., Frigerio, D. and Kotrschal, K. 2005. Active and passive social support in families of Greylag Geese (*Anser anser*). *Behaviour* **142**: 1535-1557. http://dx.doi.org/10.1163/156853905774831873

Selander, R.K. 1964. Behavior of captive South American cowbirds. *Auk* **81**: 394-402. http://dx.doi.org/10.2307/4082693

Selander, R.K. and La Rue, C.J. 1961. Interspecific preening invitation display of parasitic cowbirds. *Auk* **78**: 473-504. http://dx.doi.org/10.2307/4082183

Souto, H.N., Franchin, A.G. and Júnior, O.M. 2009. New record of allopreening between Black Vultures (*Coragyps atratus*) and Crested Caracara (*Caracara plancus*). *Sociology* **53**: 1-5.

Stöwe, M., Bugnyar, T., Schloegl, C., Heinrich, B., Kotrschal, K. and Möstl, E. 2008. Corticosterone excretion patterns and affiliative behavior over development in ravens (*Corvus corax*). *Hormonal Behaviour* **53**: 208-216. http://dx.doi.org/10.1016/j.yhbeh.2007.09.021

Verbeek, N.A.M., Butler, R.W. and Richardson, H. 1981. Interspecific allopreening solicitation in female Brewer's Blackbirds. *Condor* **83**: 179-180. http://dx.doi.org/10.2307/1367425

Waltman, J.R. and Beissinger, S.R. 1992. Breeding behavior of the Green-rumped Parrotlet. *The Wilson Bulletin* **104**: 65-84.